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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,286	04/17/2006	Giacomino Tavanti	1014.1054	9716
41226	7590	12/21/2007	EXAMINER	
POLLACK, P.C.			MASKELL, MICHAEL P	
THE CHRYSLER BUILDING				
132 EAST 43RD STREET, SUITE 760				
NEW YORK, NY 10017				
			ART UNIT	PAPER NUMBER
			2881	
			MAIL DATE	DELIVERY MODE
			12/21/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/576,286

Applicant(s)

TAVANTI, GIACOMINO

Examiner

Michael Maskell

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 04/17/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 120, a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable

petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

#### ***Oath/Declaration***

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:  
The PCT parent application number is not identified in the declaration.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3 and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Matschke, et al (U.S. Patent 5,874,741) in view of Kaiser, et al (U.S. Patent Application Publication 2002/0096648).

**Regarding claim 1**, Matschke discloses an apparatus for the continuous cold sterilization of a fluid, the apparatus comprising at least one ultraviolet radiation source (14) and at least one duct (3), through which the fluid flows, permeable to such radiation, the duct having a portion that extends helically about the source (Fig. 2), wherein the helical portion is arranged in a chamber (1), the walls of the chamber having reflective surfaces (column 3, lines 24-25), the distance between the walls and the helical portion being sufficient to allow circulation of air therebetween (apparent from Fig. 2, and inherent in the elliptical design of the housing combined with the helical shape of the duct), but fails to teach the helical portion of the duct having an elliptically-shaped passage section, the major axis of which is generally perpendicular to the direction of irradiation. However, Kaiser teaches a similar apparatus with a UV source (1) surrounded by a helical duct (27), in which the duct has an elliptically-shaped

passage section (paragraph 0027), the major axis of which is generally perpendicular to the direction of irradiation (paragraph 0025). Further, Kaiser provides a motivation for this particular shape of duct, in that attenuation of UV light is avoided (paragraph 0025). Because these teachings are analogous art, one of ordinary skill in the art would be familiar with them and have motivation (given by Kaiser) to combine the teachings to provide the apparatus of claim 1. It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to provide the apparatus of claim 1.

**Regarding claim 3,** Matschke in view of Kaiser teaches the apparatus of claim 1; Matschke fails to teach specifically wherein the distance between the walls of the chamber and the helical portion is at least about 5 mm (although such measurement seems apparent from Fig. 2). However, Kaiser teaches that the preferable cross-sectional depth of the duct is 2 to 50 mm, and the distance between the duct and the chamber wall in Fig. 2 of Matschke is clearly several times the width of the duct. The preferential width of the duct taught by Kaiser puts the optimum width at about 25 mm, so if there is even one duct-width between the duct and the wall, the distance between the wall and the helical portion is greater than 5 mm. The scale of the Matschke's drawing is significant because the purpose of the elliptical chamber walls is to maximize reflection of UV light back through the duct; a purpose which is strongly influenced by geometry. The duct dimensions taught by Kaiser are significant because Kaiser's teachings are directed towards an optimum duct geometry. To provide the benefits of both teachings (as the rejection of claim 1 has shown that one of ordinary skill would be

motivated to do), the scale of Matschke's drawings must be scaled to the dimensions taught by Kaiser (making the above logic that leads to the conclusion of a distance greater than 5 mm valid). It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to set the distance between the walls of the chamber and the helical portion to at least about 5 mm. Doing so is necessary to receive the benefits of both teachings.

**Regarding claim 4,** Matschke in view of Kaiser teaches the apparatus of claim 1; Matschke also teaches wherein the ultraviolet radiation source is tubular-shaped (Fig. 2), but fails to teach wherein the major axis of the elliptical section of the helical portion is generally parallel to the longitudinal axis of the source. However, Kaiser teaches wherein the major axis of the elliptical section of the helical portion is generally parallel to the longitudinal axis of the source (paragraph 0025). As was already explained in regards to claim 1, one of ordinary skill in the art would have used a duct with an elliptical cross section in order to obtain the benefits taught by Kaiser, and, for a tubular-shaped ultraviolet radiation source, the major axis of the elliptical section of the helical portion would inherently be parallel to the longitudinal axis of the source if the major axis of the elliptical section of the helical portion is to be perpendicular to the direction of irradiation as taught in regards to claim 1. It would therefore, for the same reasons as given in regards to claim 1, have been obvious to one of ordinary skill in the art at the time the invention was made to provide the apparatus of claim 4.

5. Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Matschke in view of Kaiser as applied to claim 1 above, and further in view of Gunn, et al (U.S.

Patent 6,586,172 B1).

**Regarding claim 2**, Matschke in view of Kaiser teaches the apparatus of claim 1, but fails to teach wherein air circulation slits are formed on the walls of the chamber. However, Gunn teaches the need to cool the fluid to avoid heat damage to biological fluids, and suggests air-cooling by fan as a method of accomplishing this (column 2, line 66). Because a fan can only accomplish air-cooling of an area by moving air from a cooler area to the area to be cooled, it would have been common sense and obvious to one of ordinary skill in the art at the time the invention was made to form air circulation slits on the walls of the chamber. Doing so would enable a fan to blow through to cool the liquid (otherwise the air would be stopped by the chamber, and the fan would be ineffectual).

6. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Matschke in view of Kaiser as applied to claim 1 above, and further in view of Wong (U.S. Patent 7,141,222). Matschke in view of Kaiser teaches the apparatus of claim 1, but fails to teach wherein an indicator light is provided outside the chamber and is connected optically to the ultraviolet radiation source through an optical fiber placed either in contact with the lamp or within its vicinity. However, Wong teaches an indicator light (42) provided outside the chamber of an analogous ultraviolet sterilizer (Fig. 1). Wong does not teach an optical fiber placed either in contact with the lamp or within its vicinity, but does teach ultraviolet light being received by column 41 and channeled to indicator 42. Optical fibers were well known in the art at the time the invention was made for channeling light from one place to another, and so it would have been obvious to one of



ordinary skill in the art at the time the invention was made to use this well-known means of channeling light to deliver the light to column 41. A later invention by Wong (U.S. Patent Application Publication 2007/0007467 A1, a continuation in part of patent 7,141,222) does not qualify as prior art due to the filing date, but serves as evidence for the obviousness of applying an optical fiber to the indicator (the optical fiber is shown applied to the indicator light in Figs. 7-1, 7-2, and 9). The use of an optical fiber in this application was clearly obvious since it readily occurred to the inventor of the ultraviolet indicator light.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Maskell whose telephone number is 571/270-3210. The examiner can normally be reached on Monday-Friday 8AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571/272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael Maskell  
19 December 2007



Jack I. Berman  
Primary Examiner